

Cockpit-based Wake Vortex Visualization, Phase I

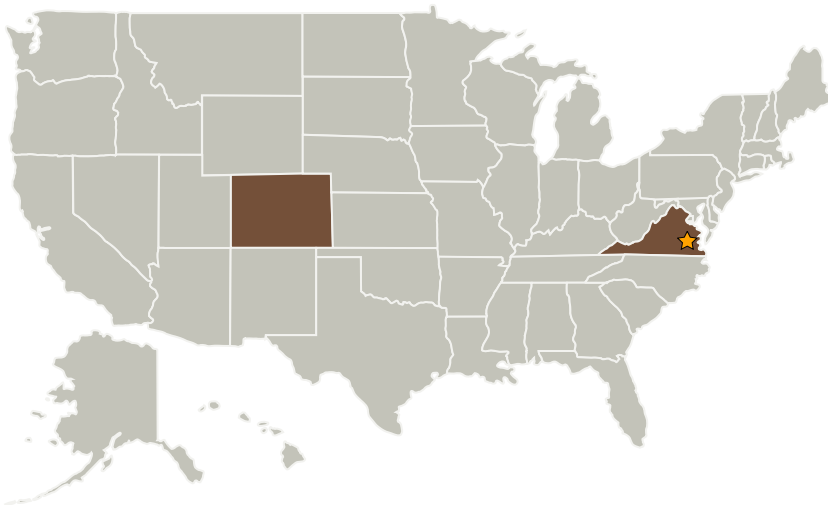
Completed Technology Project (2006 - 2006)



Project Introduction

To prevent aircraft accidents due to wake vortex hazards, FAA procedures specify the minimum separation required between different categories of aircraft. However, a mandate for increased National Airspace System capacity has led to efforts to tighten these time-tested separation constraints. One of these efforts, NASA's Wake Vortex Advisory System (WakeVAS), is intended to measure, calculate, and display wake vortex information to air traffic controllers. The controllers will utilize this information to decrease the time and distance between aircraft, thereby increasing capacity while maintaining safety. To complement this ground-based approach and provide an additional layer of safety, we propose to increase pilot situation awareness (SA) to the wake vortex hazards in the airport vicinity. In this proposal, our goal is to design a conceptual prototype of a wake vortex display for eventual use on commercial air carrier flight decks. We have chosen the commercial air carrier domain as the focus of our efforts because this is where the pressure to increase capacity is the greatest and thus, we believe, maintaining safety via pilot SA is more critical. Further, we will develop human performance models to evaluate the effect of the display on pilot SA, workload, and performance.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Micro Analysis & Design Inc	Supporting Organization	Industry	Boulder, Colorado

Primary U.S. Work Locations

Colorado	Virginia
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
 - └ TX16.3 Traffic Management Concepts